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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,973	09/26/2005	Heinz-Jurgen Gross	2003O03398WOUS	1667

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Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
Iselin, NJ 08830

EXAMINER
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EDGAR, RICHARD A

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/550,973

Applicant(s)

GROSS, HEINZ-JURGEN

Examiner

Richard Edgar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 8-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/26/2005</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION*****Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: radial direction/axis 16 (paragraphs 0037 and 0038).

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "at least one cooling passage at an angle of 0-degrees to the radial orientation" together with the crossing passages, and the "at least one cooling passage at an angle of 90-degrees to the radial orientation" together with the crossing passages, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

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Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

The disclosure is objected to because of the following informalities:

Paragraphs 0030 and 0031 should be combined.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8, 12, 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent No. 6,617,003 (Lee et al. hereinafter).

Lee et al. show a coolable layer system comprising: a substrate 4; a coating 22, 24 on said substrate; and a plurality of crossing cooling passages 20 (see col. 6, lines 17-20, 32-34; col. 7, lines 21-23) at least partially adjoining the coating 22, 24 (see FIGS. 4-7).

Regarding claim 12, in the Lee et al. embodiments depicted in FIGS. 4-7, the cooling passages 20 are arranged at least partially within the coating 22 (24 for FIG. 7).

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As to claim 13, cooling passages 20 are located between two coatings: 22/24 in FIG. 6; and 22/26 in FIG. 7.

Lastly, with respect to claim 14, Lee et al. disclose in col. 6, line 11 and col. 7, lines 29 and 51-54 that the cross-sectional shape of the cooling passages 20 are triangular. A triangle has the claimed undercuts.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 6,617,003 (Lee et al. hereinafter) as applied to claim 8 above, and further in view of United States Patent No. 3,620,643 (Jones hereinafter).

Lee et al. disclose a plurality of cooling passages 20 that are arranged in a mesh pattern (see col. 6, lines 17-20, 32-34; col. 7, lines 21-23), but Lee et al. do not distinguish which orientation the mesh pattern has with respect to the blade. Therefore, Lee et al. do not teach one cooling passage at an angle of zero-degrees or ninety-degrees with respect to a radial orientation.

Jones shows a mesh cooling arrangement for a turbine airfoil in FIG. 2 comprising longitudinal and axial arranged cooling passages 30, 31 for the purpose of cooling the surface of the airfoil exposed to hot combustion gases.

Since Lee et al. disclose a mesh cooling pattern on an airfoil outer surface and Jones teaches to position the mesh cooling arrangement so that the passages are arranged at a 0-degree and 90-degree orientation, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to position the Lee et al. mesh cooling arrangement so that the passages are arranged at a 0-degree and 90-degree orientation as taught by Jones, for the purpose of cooling the surface of the airfoil exposed to hot combustion gases.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 6,617,003 (Lee et al. hereinafter) as applied to claim 8 above, and further in view of United States Patent No. 5,370,499 (Lee hereinafter).

Lee et al. disclose a plurality of cooling passages 20 that are arranged in a mesh pattern (see col. 6, lines 17-20, 32-34; col. 7, lines 21-23), but Lee et al. do not distinguish which orientation the mesh pattern has with respect to the blade. Therefore, Lee et al. do not teach one cooling passage at an angle between zero-degrees and ninety-degrees with respect to a radial orientation.

Lee show a cooling mesh pattern with passages arranged at an angle between zero-degrees and ninety-degrees with respect to a radial orientation for the purpose of cooling the surface of the airfoil exposed to hot combustion gases.

Since Lee et al. disclose a mesh cooling pattern on an airfoil outer surface and Lee teaches to position the mesh cooling arrangement so that the passages are arranged between zero-degrees and ninety-degrees with respect to a radial orientation,

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it would have been obvious at the time the invention was made to a person having ordinary skill in the art to position the Lee et al. mesh cooling arrangement so that the passages are arranged between zero-degrees and ninety-degrees with respect to a radial orientation, as taught by Jones, for the purpose of cooling the surface of the airfoil exposed to hot combustion gases.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Edgar whose telephone number is (571) 272-4816. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7 am- 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Richard Edgar  
Examiner  
Art Unit 3745

RE